

# AVIATION WEEK

A MCGRAW-HILL PUBLICATION

OCT. 27, 1952

50 CENTS

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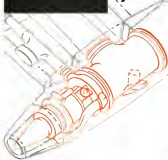
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Operational performance is improved: heaters are located at the tip of the wing where highest temperatures are achieved and the plane's service ceiling is upped 1,500 feet by the favorable heat plate effect of the ports. This is another good example of Janitrol's long combustion engineering experience successfully teamed up with aircraft builders to "ease the engine" and "extend the range" of aircraft heater performance. . . . The engineer in the design stage you call in your Janitrol representative on your heating problems—the heat.



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## How Pioneer's typing pool cut secretarial overhead by 20%

■ Remington Electric Economy typewriters enable expanding airline to handle twice the volume of paperwork...with 20% fewer typists!

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► These new advantages of Electric Economy typing are available in any company—large or small. Anyone desiring free demonstration of Electric Economy typing or free booklet "Take a Letter" (16 p. 8198) should write Remington Rand Inc., Room 2428, 315 Park Ave., New York 10, N.Y.



"SPEED COUNTS AT PIONEER."

mary Margaret Brown, executive secretary to Gen. Smith. "That's why I consider my Electric Economy type" its superior speed and automatic features enable me to keep up better-looking letters, faster, and more accurately. It's the perfect typewriter."

### Domestic

Douglas X-3 hypersonic research plane made its first flight last week at Edwards AFB in California with Bill Bridgman, Douglas test pilot, at the controls. The supersonic X-3 is powered by two Wright-Patterson J60 axial turbojets.

Amos Culbert, vice president-sales, Northwest Airlines, has resigned. His future plans are not disclosed. Malcolm S. McKee, NWA executive vice president, will handle Culbert's duties temporarily. James Morson, general sales manager, has been promoted to assistant vice president-sales. He joined the carrier in 1943.

U.S. civil plane exports during September totaled 25 units weighing 6,000 lb and less, valued at \$163,563, total being 139 the aircraft exported in the first nine months of this year, valued at \$1,896,171.

Passenger and executive plane ship orders during September totaled 100 one-to-two place units valued at \$2,472,000. In the first nine months of 1952, Cessna had with shipment of 1,103 planes, Piper with orders for 918 and Beech third with 330.

Stephen Lee vice president at Sves drop & Ford, Inc., has completed his temporary assignment in managing its center of Ave. Inc., Tulsa, Okla., and returned to S&F in St. Louis. T. P. Farrell replaced Leo at Ave, Inc.

Second prize letter contest for Mr. Dennis F. H. Dwyer letter has been awarded Tuxedo, Ala. (Dallas Award) called for a "substantiated letter quality" of the News carrier letters.

Charles Kowalski was named general counsel at the Office of Defense Mobilization in Washington. He formerly served in the same capacity for the Defense Production Administration and National Security Resources Board.

Airfite, Inc., Miami, Fla., is undergoing preliminary research to produce hand-designed cargo plane based on the Lockheed aerial machine design. The prototype will have more powerful engines installed.

Edith A. Spaulding has been appointed general manager of Fairchild Cooled Motors division of Fairchild Engine and Airplane Corp. He has



FLETCHER FQ-21 DEFENDER, jet-powered support aircraft, has checked into the spotlight with announcement by company officials that an agreement has been signed with the Tejo Aircraft Co., to build the plane in Japan. It's expected to be

been vice-president of the Defense Department Research and Development Board for past two years.

National Airlines alleges that Eastern Air Lines directors and associates sought indirect control of Colonial to merge it with Eastern control of National. Cited are "secret" stock acquisitions by six parties who held a total of 34% of outstanding shares, combined with Segments' limited proceeds effective control with 50%.

### Financial

American Airlines, Inc., showed a net income after taxes of \$9,751,000 an gross average of \$135,460,000 (gross \$123,351,000) for the same period in 1951. As declared a dividend of 25 cents on \$1 par value, common stock and the regular quarterly dividend of 87½ cents on \$1.50 cumulative convertibles preferred stock.

California Eastern Airways, Inc., Oakland, Calif., reports a net profit, after taxes, of \$949,597 for period ending June 30, compared to \$12,064 for same period in 1951.

Consolidated Vultures Aircraft Corp. San Diego, reports a quarterly dividend of 80 cents a share on outstanding

the first plane to be manufactured in Japan near the end of World War II. Fletcher FQ-21 will be shipped to Japan soon. The plane carries two 1300, auxiliary gas, 1,000 pounds of ammo and rockets. Shiro Dept. has approved the transaction.

common stock payable Nov. 25 to stock holders at record as of Nov. 14.

### International

Japan Air Line was 68 million yen (\$55,000) in the end of the first of September, a year after its formation, despite fact it pays no gasoline consumption tax and has not paid business and food property taxes.

Canadian government spending for aircraft equipment and support equipment during the last two weeks of September amounted to \$66 million, according to the Department of Defense Production, Ottawa. Orders include \$66 million for Canada jet engines to A. V. Roe (Canada) Ltd., Milton, Ont., \$59,550,000 for three engine-overhaul contracts by RCAAP, \$12 million for aircraft repairs, and \$1,900,000 for aircraft training device.

De Havilland will deliver the first jet transport to the Royal Canadian Air Force in England before Christmas and a second in London. Flights will be brought to Canada early in the spring. This will be used for high-speed transport for transportation flights by most RCAAP routes and exercises to test Canada's defense against jet aircraft attack.

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### 3H SAFETY CLAMPS

## AVIATION CALENDAR

Oct. 18-19—Transport Aircraft Hydraulics  
Service Conference, sponsored by Vert  
co. Inc., Hotel Park Sheraton, Detroit

Oct. 18-MT—AACE Air Transport Committee annual meeting, Commodore Park Hotel, Boise.

Oct. 29-31—AIEE conference on machine tools, New York Hotel, Albany, N. Y.

Notes 6-7—Natural fuels and lubricants meeting Society of Automotive Engineers' The Motor Vehicle Code

New T-8RE apparatus on microwave oven  
control Western Union Addresser New  
York

Ng, S.-A., and Madsen, H. 1997. "A new method for determining the effective Young's modulus of a composite material." *Journal of Composite Materials*, 31(12): 1031-1044.

**Spec. 12.12**—Fiber detail/notes' annual meet  
see Lock Haven, Pa.

Page 1545—American Society of American  
crustaceans on a small scale. San Diego,  
Calif. (For details, see ASA, 57 F. 51  
St., New York 12.)

View [7.2D]-Natural Aviation Wilds Area  
natural recreation. Hollywood Reservoir  
Hollywood, Los Angeles

New 1971-Fourth Annual Safety Source sponsored by Fleet Safety Foundation  
 Hamilton Nevada

Doc. 2—Inventory on light metal body fittings and accessories for aircraft SAB, 4049, 148 and 4100

Dec. 25-Archives Foundation and Miami University Ann. 40th annual meeting. The Kentucky Miami Inn.

Dec. 14-15 only in Experimental Stress  
analysis, annual meeting, Hotel McAlpin  
New York

Dec 10-12—Joint AIR FORCE/ACM conference on electronic computers. Park Sheraton Hotel, New York.

Dec. 17.—Annual Wright Bros. Dinner, 736  
p.m. - Statler Hotel, Washington, D. C.  
Wright Bros. Lecture to be presented by  
L.S. 1 p.m. - U. S. Chamber of Commerce  
auditorium.

Jan 14-16—AFOS-192-NBS conference on  
High Frequency Measurements Station  
Hart Washington, D. C.

Jan. 19-12—Plant Maintenance Conference  
Public Auditorium, Cleveland, O

Jan. 1918—Winter general meeting of the American Institute of Herpetological Engineers, Hotel Statler, New York, N. Y.

#### PICTURE CREDITS

4—Lory Elting 12—F.A. 18—Falschell  
9—Donald Adams 10—Hugh Hunter SM  
delay: (school) Gladys Alvord 70 15—  
N. L.A. 12—Howard Lory



## TAKEOFF

of N. Y. Airways. Slightly 5.55 from the carrier's base at La Guardia Airport Marine Terminal. NEA began daytime, twice-weekly mail service between La Guardia, Newark and Idle H. Airport Oct. 14.

## N. Y. Airways Starts Copter Mail Service



## MAIL SACK

**REPORT** on weather is limited. Chief Pilot Howard Higgins by Douglas Warner Freager



## REPORT

8.33 pilots occupy right seat, co-pilots the left seat. Arrow shows where emergency Ejection seat is located. Another bag (inflated) is placed in tail cone.

## GROUND STATION

equipment features. Windows  
systems and transducers

## COCKPIT

of NTA 3-45 showing complete gross gain for day and night operation.





## Washington Roundup

## Weapons Evaluation

Pressure is developing for greater participation by the Pentagon's top civilian command in deciding what planes, guided missiles and other weapons the military services should be permitted to develop and acquire.

Involved with long-range direction of the military supply program, Congress this year gave the Secretary of Defense almost unlimited access to government and production. He promptly passed it on to the chairman of the House House, also for the first time was given power of decision, subject only to the Secretary's approval.

Now the focus is increasing on the subject of the Defense Department's weapons evaluation program is being loosely directed, that each of the services is branching out in all directions, and that reports are thereby to "find their own way" is badly needed.

All weapons evaluation now comes under the Joint Chiefs of Staff. Each service has its own program, and the Weapons Systems Evaluation Group, established by the late Secretary James Parsons for technical and operational evaluation on an inter-service basis, is an arm of JCS in which each service has an equal voice.

Here are indications of the growing move to bring outside direction into weapons evaluation:

• **House Appropriations Committee** last fall that the results of the process are that each service gets what it wants, what it wants. The group is likely to shift direction next year to prevent the Pentagon from automatic selection of weapons.

• **Senate Appropriations Subcommittee** has called on Dr. Joseph Stiglitz, Robert L. Smith to appoint a committee of military men and civilians to re-evaluate the composition of the armed services.

• **Gen. Dwight Eisenhower** expressed the views of many Democrats, as well as Republicans, in Congress in his address last year.

"We cannot pretend to do everything in every field all the time... For this reason, we must put weapons development must be used and sound."

Whenever a new weapon comes from the laboratories, all arms-development responsibilities fall on the shoulders of the Secretary. This is the almost inevitable device of each service to do the research, development and production work on new weapons.

He recommended a civilian-military group for "joint studies" among the services—characteristic now will find all three engaged in spending public money for a single need.

• **Dr. Vanessa Bush**, wartime chief of research and research, has proposed that the Joint Chiefs be separated from their service posts and sent exclusively to advise the Defense Secretary to bring new weapons and other devices into the armed services' weapons program.

## Political Notes

Sen. Joseph O'Mahoney, chairman of Senate Appropriations Subcommittee on the Armed Services and one of the Air Force's best and most influential friends on Capitol Hill, has strong opposition for re-election in Wyoming. His opponent, Gov. Frank Barrett, was a consistent critic of warlike, in fact, he was a peace advocate who doesn't expect 1975, re-election O'Mahoney.

Since the years before World War II, O'Mahoney has fought for funds for industrial air power in the last

years, he led a successful fight against cutting funds for the 147-wing USAF program, and a half-successful fight to permit Air Inc. trust of congressional changes of management and production, to operate the Arnold Development Center (transport can operate AEDC in May '93).

On his way he asked that the scheduled airlines, using against permitting national defense industries to industrialize regular carriers and against a rapid formula for mail pay over international routes.

Wayne Cable Lodge already is announced as a project for Secretary of Defense at Eisenhower is elected. He is engaged in a staff battle for re-election. Along with Tom Sen. Lyndon Johnson, Lodge led congressional opposition to emphasize an "outlet" instead of "gate" in the re-election program, particularly the air program. He launched the drive for the 147-wing USAF program, but the Senate speeches denouncing a vast expansion of tactical air for NATO. Lodge supported national defense industries for continued regular carriers and a limited formula for mail pay to international routes.

Rep. John Kennedy, Lodge's opponent, has been in action since for his presidential battle of several years for a rapid formula for determining mail pay to airlines. He has forced opening the subsidy field to the non-scheduled carrier.

In the last session, Kennedy went Lodge one better and attempted to have permanent income for the 147-wing program increased from the \$12 billion approved by Defense Department to the \$17 billion USAF request.

Sen. Owen Brewster, defeated for reelection in Maine, is credited as for a top post in a Republican administration, possibly Secretary for Air. Sen. Joe DeLoe, Brewster has demonstrated the party spirit, even engaging in a fight for Gov. Frederick Chase, who was the Republican nomination from him, and for the House House. He was a co-sponsor of the 1948 Congress and American Policy Board.

Rep. Albert Gore, almost certain to join the Senate next term, Tennessee, isn't expected to join such path behind his race against Air, Inc., next year. He has been told he will have a seat in the Senate and Senate. Sen. Strom Thurmond, the design as to how AEDC should be operated and to General Armstrong Office action on his proposed payments to Air.

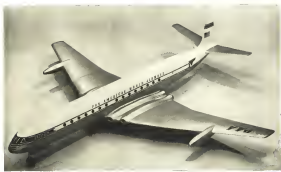
Sen. James Krenn is strong, national Gov. developed against Air, Inc. in the House, with Sen. William Symington, the Democratic nominee. As Secretary for Air, Strom Thurmond is decided to turn operations of AEDC over to Air.

Changes of management and route of his efforts at the Tennessee institution were possible proposals worked for Gov. in the program. But his attack was not aimed at Strom Thurmond, whom he gave a clean bill. In the last session, Krenn was supporting the armed forces' expansion program, but the scheduled airlines.

Sen. John Brooke, co-chair of the Senate's subcommittee on air safety programs, is going to go to the re-election over his Democratic opponent, former Press Secretary Mike DeLoe.

Sen. John Williams, who consistently fought to build defense industries to airlines, as well as for all other parts, is a close ally for re-election with Alvin Dwyer, Rep. in Delaware. Williams has been making industrialized airlines, as well as the scheduled lines, durable for national defense support.

—Robert Johnson



PAA's COMET 3 (JET CLIFFER, shown in preliminary model) lines, among the carrier's roles, will test 38 B-70s or 70 B-70s

## PAA Signs Firm Contract for Comet 3

Carrier 'buys British' after U. S. makers say their jet transports will not meet 1956 delivery date.

New craft, not yet built, may see first PAA service on competitive route from New York to Buenos Aires.

John, Puerto Rico, 1,950 mi. to Miami, 1,523 mi. to Rio and a 1,350-mi. leg to Buenos Aires.

The PAA American version of the Comet 3 is guaranteed for a stage length of 2,700 statute mi. with a full cruise load of 14,750 lb. operating at a 50 mph. headwind with reserves sufficient to reach an alternate airport 280 mi. distant after 45 min. standing time. It will carry 5,780 U. S. gal. of fuel in cruise and extend wing tanks.

PAA will acquire installation of track serving in its Comets that will make them readily convertible from 78-passenger European service to 75-passenger high-density operations.

► **Specs Confirmed—Specifications** of the Comet 3 announced by PAA America also confirm the carrier as then published, exclusively by Aviation Week Co. PAA has a guaranteed range 300 mi. less than de Havilland's maximum estimate for the Comet 3 and plans to seat two less passengers in its first-class version and six less in the high-density version than the maximum possible.

Once the decision to buy the Comets was made, PAA officials moved with

the American World Airways noted last week to report its jet-powered competition by ordering three de Havilland Comet 3s and taking as options an even seven.

The PAA American order was the first United States airline order for a long-disputed plane since the Fokker trimotors of the early 1930s. It was a firm contract agreed in London by Freddie Gloff, PAA vice president for technical and personnel, with de Havilland's purchasing director by the end of 1956. The option for an additional seven Comets must be exercised at the time of the first delivery to PAA and scheduled for the additional deliveries for 1957. PAA America will get three of the five as Comet 3s to operate all of the de Havilland production line. Other three will go to BOAC.

John Trapp, PAA president, has had

as option on the two of Comet 3s since last summer and ordered Gloff to sign the firm contract on the last day before this option expired. The PAA decision was approved by its board of directors. PAA will pay about \$2.1 million for each Comet 3 plus the cost of American-type equipment that will be installed.

► **South American Phase—Although** PAA would not comment on where it planned to put the Comets into service it was expected they would be used on the New York-Buenos Aires run where PAA will get jet competition from LIAV, the Venezuelan airline that has a pair of Comet 3s on order. PAA estimated it could make the 6,100 mi. flight in 19 hr., 5 min., cutting approximately 10 hr. from its current Stratumaker schedules. The jet route would run via a 1,600-mi. leg from New York to Sao

## More U.K. Funds for Comet 3

London—The Comet 3 will have a much longer development subsidy behind it than its two predecessors had.

• The Ministry of Supply is preparing to draw up a contract for the Comet 3 development which will include all development costs of the aircraft. The contract follows the line of MoS contract with Bristol Aeroplane, Ltd. for the Britannia. No figure has been announced in either contract yet.

• So far as Comet development is concerned, this is a change of tone for MoS. The government agency backed the Series 1 and Series 2 Comets with £1.5 million (1942 million). Approximately a third of this money covered the "normal commercial price" paid for the first

two aircraft prototypes. (This price, set many months before the Series 1 flew, was obviously way below D.H.'s cost on the prototype project.)

• About two-thirds of the original \$4.2-million subsidy covered development and purchase of the first Series 2 prototype. This procedure is now duplicated in the Comet 3 and Britannia contracts. But these contracts will entail "very small new money" Reman. Development of the Series 1 to the Series 2 Comet is relatively minor—mainly a stretched fuselage (larger development being strictly military). But the jump to the Series 3 will be actively big. Both D.H. and MoS refer to the Series 3 as "essentially a new aircraft."

## Red Air Buildup

- Finletter sees signs of new Korean offensive.
- Nest of twin-jet bombers reported in Manchuria.

There are increasing signs in Korea that the Communists are again making another attempt to gain or temporarily take the offensive in the war, Thomas K. Finletter, Secretary of the Air Force, said last week after his return from a "round-the-world" inspection flight.

Finletter said the Red Air Forces had just about doubled their strength in Manchuria during the past 12 months and now had about 2,500 aircraft of which at least 1,500 were jet fighters—mostly MiG-15s. When the Reds made this that led for control of MiG. After they had about 1,500 planes, of which 700 were jet fighters.

• Russian Investment—Total Russian investment in both the Chinese and North Korean air forces during the last year has been about 4,000 planes of which 4,000 have gone to the Chinese. About 2,500 new jet aircraft have been shipped to Manchuria during the past year to replace combat and operational losses and bring the Communists on strength to its current level.

Finletter said MiG-15 fighters have destroyed 445 U.S. aircraft since November 1948 and have damaged 645, including many planes that eventually were total losses. USAF calculates that the Chinese have lost 100 aircraft in the last 15 days because of new jet losses to the Russians. Finletter said that the Communists' new and combat operations.

Finletter said that since the birth of Nations, all the aircraft of MiG-15s, the Communist air forces have replaced into a strictly defensive effort during which they lost less than 100 aircraft as a result of an increase in the quality and quantity of USAF F-84 Sabres operating against the MiGs. In addition to the increased loss of Communist aircraft in Manchuria, Finletter also cited the recent transfer of a sizable quantity of new jet bombers to the Russian Far East air force in Siberia where they would be readily available to the Chinese.

• New Red Weapons—"This aircraft has been used in the second jet era," said Finletter. "It is the fourth as offensive weapon. Whether these fast jet bombers have actually been turned over to the Chinese as yet is uncertain."

Finletter said he was done earlier with the MiGs, the situation of the Chinese was to be in the Chinese aircraft in

their use, before making the actual transfer. The fact remains that a new and potentially dangerous factor has now entered on the other side of the Korean equation.

Finletter said that USAF air strength in Korea has been increased to meet the threat by increasing combat groups already on the same up to full strength and by adding several new groups of Republic F-84 fighter bombers to the Far East Air Force.

## O'Konski Opens New Fight on Kaiser

Rep. Alvin O'Konski has fired an attack aimed at his campaign against Kaiser-Frazer Corp. in the House, with protesting on defense work.

"K.F. has lost sight of its own responsibilities," the Wisconsin Republican declared. "But they continue to receive and place special orders on defense work. The only conceivable explanation for this discrepancy is that the defense contracts are let at excessive prices."

He supported an explanation from Secretary of Defense Robert Lovett at "the nature and amount of the defense work, what prices were paid for it, what prices were paid to other contractors for comparable work, where was the work performed and what portion of this work has actually been received and accepted by the government."

Commenting that "it goes against" that K.F. is seeking "a new lease on life," Reconstruction Finance Corp. O'Konski also requested RFC Administrator Harry McDonald for "assistance" that no further loans would be granted to the corporation. "If he is not," he said, "would be a better public trust."

A spokesman for K.F. declined to comment on the congressman's latest charge, stating that this corporation previously had answered his charges.

## Sayen Victory Assured in ALPA

Chicago—Even before the Air Line Pilots Assn. began its annual convention here last Monday, Clarence N. Sayen could count on being re-elected president.

Shortly before the meeting opened, the U.S. Circuit Court of Appeals ruled that ALPA leaders and former president, David L. Belcher, had illegally been ousted from his post in 1951 (Aviation Week July 23, 1951).

Although this meant another defeat for Belcher in his two-year fight to regain control of the association, the decision still left the case open by directing the Federal District Court to look into some other recommendations

of the Special Master who had reported the case. Those recommendations had not been considered before the lower court's appeal decision.

Another early prediction was that proposals to withdraw from the American Federation of Labor would be overruled. Chairman David first presented on a resolution recommending that the affiliation be continued and by ALPA to take a more active part in union activities.

A movement to transfer ALPA's headquarters from Chicago to New York was being presented actively among the 225 delegates.

But this also is expected to have no effect despite the Chicago bidding. • Safety—Under discussion was establishment of an annual Air Safety Congress to meet each March. The congress would consist of at least one safety representative from each airline's pilot membership plus other ALPA members involved in special safety projects. Involvement would be extended to other groups interested in flying safety, including airframe cargo and equipment companies.

• Traffic control—The delegates also voted on three resolutions. • For a standard left-hand traffic pattern within a defined control zone at all airports, varying only by special clearance from air traffic control.

• For a considerable portion of ALPA constitution will be laws aimed to assure that no chief executive in the air force could have the so-called "discretion" power that one-time president Belcher has.

• Revision of present landing and take-off clearance procedures prior to establishing experimental systems for evaluating new low approach airports. • To make pilot security on any day a simple matter of data of employment. This would give pilot photo, usually on the larger carrier, a monthly advantage over pilots of smaller airlines in most of airports. —A. McK.

## Negotiators Settle Douglas Wage Dispute

Negotiations for Douglas Aircraft and AFL International Association of Machinists Lodge 720 last week settled the wage dispute which caused a two-week strike last month at the El Segundo plant.

The agreement, granting a 5-cent hourly wage increase and some fringe benefits, was subject to arbitration by the local union membership a week later.

Both Douglas and the union were using little publicity about the terms reached in Washington with the assistance of the Federal Mediation and Conciliation Service, to avoid consideration of what might come the membership to reject them. One of the reasons is that Lodge 720 had struck on Sept. 15 rather than accept Doug last Sept. 10.

Union negotiators insist the strike was a "substantial improvement" over Douglas' earlier offer.

The settlement, *Aviation Week* says, gave Douglas workers a top rate of \$18 an hour, seven cents above the top rate in North American airplane work, new contract with CIO United Auto Workers. Cost-of-living increases, under a General Motors-type escalator, will go into the basic wage rate and take the maximum job rate, other than being paid as a bonus. Douglas also agreed to accelerate progression of pay levels on about every 16 weeks, up to the maximum job rate.

## Safety Council Appoints

J. H. Waterman, chairman of general safety for Trans World Airlines, Kansas City, was elected chairman of the Air Transport Council of the National Safety Council at Chicago, succeeding Robert Peters, industrial safety supervisor of American Airlines, Tulsa.



MYSTERY BUILT FOR TWO

Prototype, Model 40000, will be the first, which differs from basic MD-400 as it has a wing box and home base engine in the MD-400.

is a single-engine and has a more subtle. Designed to operate at 10,000 ft. The prototype has a weight of approximately 10,000 lb.





## Sand Spit Crash

- Pilots, NWA officials dispute CAB findings.
- They say cause of fatal water landing unknown.

Pilots and operations officials of Northwest Airlines have challenged the Civil Aeronautics Board report that "probable cause" of the Jan. 18 Northwest DC-4 crash off Sand Spit, B. C., last to 16 of 43 aboard, "was the high approach to the runway and the attempt to arrest the aircraft at an altitude of 100 feet, which resulted in the aircraft settling into the water."

One of the accident is completely unknown, any of the Air Line Pilot's Association, says NWA. Operations officials of CAB emphasize on the crash appeared in *Airline News*, May 12, p. 44.

A top company official in a confidential interview says the CAB report is "unsubstantiated in this report point in point." He concludes that:

• The "high approach" stated by CAB as the cause of the accident is not substantiated by the evidence and would not be a "cause" of the accident in any way.

• The "attempt to become airborne," stated by CAB as the other cause of the accident, was not substantiated by the evidence. In the phase, the Northwest official says "was airborne and under control, and for some unknown reason was unable to fly, and struck the water three fourths of a mile from the end of the runway."

In this accident, a TWA DC-4 operated by Northwest on the Pacific Air, was returning from Tokyo to Seattle via Alaska. Halfway from Alaska to Seattle the No. 4 engine quit. Here the pilot told a passenger, Lt. Donald Miller, that he would prefer to go on to Seattle but that company rules required him to land at the first available airport, which was a small emergency airstrip aptly named "Sand Spit."

The runway was believed only be three feet below the water, bordered and ended the regular lighting system. There is a question whether the far end of the runway was marked at all. Braking conditions were reported "fair" with light snow. Pilot touched down and then took off again for another approach.

The plane hit water, bounced, and ended up almost one mile from the runway end. Although the runway was lower, all, or almost all, 43 aboard got out. But by the time the plane lodged on a sandbar with only one wing out

only seven survived the 45 men went before rescue.

The engine that failed originally had run 325 hours, according to its maintenance records, and was a good engine, according to the company's records, because of a stack-clearance error in the engine from TWA to Boeing.

The CAB report attempts to analyze the "probable cause" of the crash.

• **High CAB Analysis.** Northwest operations officials and ALPA pilot group criticize some points in the CAB report on this crash, including:

• **Picking Sand Spit.** CAB reports "In accordance with company operating procedures, the captain elected to land at this last available airport." There are based on strict interpretation of Civil Air Regulations, Northwest points out, and adds that the pilot followed the rules strictly because "it was the last available airport in direct proximity to the pilot." The ALPA spokesman also says that "the CAB report deletes the fact that the pilot was never informed by CAB. Consequently, that our dispatchers in Seattle had sent him a message that the weather in Seattle was clear and expected to remain clear. That alone would help to make up his mind to continue on land."

• **High approach.** Northwest points out that the two ground observers could not tell whether the approach was high, or accurately tell how far down the runway the plane landed. Thus, it concludes that the pilot had no basis for claiming that he had been misled. In addition, "an observer watching an airplane land at night without obstructions and with good contrast lights normally cannot fix

the exact point of touchdown and can only guess as to whether 1,000 ft."

• **Taken "abandon."** Similarly, Northwest maintains agrees with a pilot's statement that "the (some two) will never who saw the plane take off couldn't possibly have told how high he was at the end of the runway, and we are sure that this fact doesn't have much to do with the crash." It is added that the CAB report says the plane had cleared a low fence and drifted down 100 ft high at the runway end. However, pilots who visited the scene say there was a snowbank at least three ft high at the end of the runway and the driftwood and fence were another 100 ft beyond the runway end.

• **Banked approach.** Normal take off practice is to turn up, then 30 degrees. "Which were found 'definitely' up and they banked in 'south' as the CAB report says. Down could not get a good view but estimated by fact that the right wing flap was down 'about 40 deg.'" But pilots state that flaps are required to break loose on ditching aspect. The Northwest official counters that "obviously the gear would have been retracted immediately on becoming airborne and the flaps would have been retracted. It therefore does not seem logical to presume that there was a high angle of attack under the circumstances, or that an adequate rate of climb was not maintained after the gear and flaps were retracted."

He concludes by saying: "There are perhaps many other points of significance in the public authorities that these are rather unknown before which were needed in the accident."

## West Germans Plan Aircraft Production

(Aircraft World News)

Business-New signs of rejuvenation of the German aircraft industry are indicated in plans at the Focke-Wulf assembly plant to resume construction of powered aircraft in 1960 in the Allied but on building such planes is lifted according to VFWB, the West German economic union agency.

It also was reported that the well known German designer, Willy Messerschmitt is considering the possibility of aircraft construction in Essen where planes are being dismantled with only one to build an assembly plant and houses for aircraft parts, VFWB says.

The Focke-Wulf works have been rebuilt to such an extent that the production of parts for aircraft could be resumed without difficulty. The plant now employs some of its former skilled workers in glider production and has produced 10 gliders since June.

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SUPERMARINE SWIFT makes considerable use of U. S. mass production methods, giving it a head start on the

## Britain Gets Set to Produce Its Aces

- Two new transonic fighters by Supermarine, Hawker have been awarded top priority production status.
- Companies took different approaches in setting up design and production criteria for Swift and Hunter.

By David A. Anderson

**London**—There are two sides to the important aircraft production story in England today.

One side is typified by the Victor Supermarine Swift, supersonic American fighter for the Royal Air Force. Swift is being designed with high strength aluminum alloy, the Swift design calls for many complex parts machined to close tolerances and fine finishes. It is an Americanized production design in every way.

The other side is typified by the Hawker Hunter, supersonic American fighter for the RAF. The Hunter is built with a minimum of machined parts. Conventional design and drawing techniques apply, and high-strength aluminum alloys are used. A simplified surface finish on the entire aircraft puts the final touches on a product of traditional British craftsmanship.

► **Powerful Pair**—There is little to choose from between the two airplanes. They both have transonic performance potential. They both carry the heavy punch of four 30-mm cannon. They both enjoy a super-priority production

rating. They both stress robustness from a long line of fighter development by the parent firm, and move directly in that progressive steps from one firm's first jet design.

The Hunter is a little faster, but the Swift has more range. The Swift will probably be in supersonic service zones, the Hunter may be a little slower to maneuver in the sky.

So it's interesting to see how two production approaches have opposite directions can turn out such similar end products.

### Supermarine Swift

Production of the Supermarine Swift will center around the factory at South Marston, near Swindon. Just one year ago that plant was up to its nostrils in production of the Attacker for the Royal Navy and Pakistan. (Aviation Week Oct. 20, 1951, p. 21.)

Today there are only production Swifts on the line and—21 fewer members in the air.

It's a far cry from the straight-winged Attacker to the high-wing Swift. The two craft are comparable in size, but their construction details

► **Swift's Area**—The Swift is powered by a Rolls-Royce Avon turbojet with an afterburner. The powerplant dictates the major portion of the fuselage design, beginning with the displaced exit slots forward of the pilot's station and running out about 30 feet to the wing root. Underneath the heavy ducting struggle a pair of 10-mm.-cross-section pipes will carry the full complement of fuel.

Wing planform of the Swift is elegant, basically a swept structure, the inboard leading edge has been cranked forward an almost imperceptible amount. The outboard leading edge has been cranked up at a greater angle of sweep than the inboard portion. Airfoils are large and of large chord.

Span of the craft is 32 ft 4 in., length is 41 ft 6 in., height is 12 ft 6 in. The wing area has been increased to 295 sq ft.

► **Production Status**—Supermarine is in the early stages of production on the Swift. At the time of last year's report, the factory didn't even have a letter of intent to build the airplane; in less than one year, they have built up a respectable production line.

A walk through the shop shows more members than last year. Some of these have been delivered from the U. S. "at long last," and one official—80 sq ft floor space reserved for them since last year. Orders have been placed in England and from all over the Continent.



HAWKER HUNTER, in the same class, but typifying the traditional British emphasis on individual craftsmanship

The overall impression is that Supermarine has some of its second thinking, but not enough. Like the Cincinnati Hydromatic-Supermarine, last year, but needs an extra schedule. Officials don't let anybody forget the need for those extra feet, either. Called from the Ministry of Supply who go to the office of S. F. Winder, Swift Manager's superintendent, are proudly greeted with, "Have you got your 15-minute rest?"

One huge spur miller is installed, but no start mill. That latter work is being done in a small shop, an converted one-chamber Supermarine is putting together a large-size than smaller than odds and ends.

► **Something Different**—Your first color impression that the Swift is going to be built differently comes when you see a stack of laser-cutting parts. That's a stack that has a pair of an individual program—and possibly a future standard procedure—to acquire production members with the need for careful handling of the high-strength, high-temperature materials.

Surface scratches are definitely out, saw with diamond past to be scrapped. Hence the wrapping procedure, and the use of felt-covered strapping rails and the addition of a large guard concealed with pressure and quality control.

Direct comparison of the alloys used was not possible at the time because of the differences in British and American manufacturing. The ultimate tensile strength of the alloy making up most of the Swift is 68,000 psi. That would compare to the strength of Key 6061 alloy R301, or Alcoa 75 ST.

Standard finish of machined parts is pegged at 20 microinches for the high-strength alloy. Supermarine is conducting a series of development tests aimed at establishing a quick, and thorough procedure for a 10 micro-inch surface finish on machine parts. One such technique uses tumbling, with the chosen medium a mixture of granite chips, soap and water. The parts are treated with the medium daily, and then a slightly "coarser" appearance under factory lighting.

► **Light Strength**—Wright wanted a certificate on evidence at Supermarine. A typical example could be found in a fitting which used a row of bolts for structural. Instead of a straight-line bench for the bearing flange, the design here specified a scull-shaped cut to remove the excess non-producing material between bolt-holes. This kind of philosophy has been carried through on the Swift wherever spare material wasn't carrying any load.

Two engineers at Supermarine have developed a basic routine of checking flat parts such as ribs. Their gadget uses a surface plate in combination with leveling bars, holes and blocks laid out in a circular grid. When the part is fabricated, two of these leveling points are laid back into the piece. Checking of the finished product is quick and simple, with a "go/no-go" answer available instantly to an inexperienced inspector.

One of the factors is such that some cast-and-cure parts can be checked. Availability of the sphere means that groups of parts can be inspected on a daily basis, for example with the inspection coming through a cycle of ribs

and then changing the fixture to check plus plates and so on.

► **Something Up**—All external details of the Swift are standard, which makes it impossible to describe individual parts and describe their fabrication. It is possible to make some very general statements based on the external appearance of the Swift, compared with background knowledge of the firm.

One British technician pointed out that while the Swift is not as pleasing aesthetically as the Hunter, it has a more brutal look, a tougher appearance. "It's a fighter machine," he said, "and it's built that way."

A look at photographs of the Swift gives clues to the external structure. From cockpit to tail there is a large, rounded panel on the upper surface of the fuselage for engine access. On the fuselage carry legs through the area, making for photos. Even with load-out using jacks, these frames must be built continuously.

Use of the panel also denotes the use of a pair of heavy hinges on an application of the panel for the internal structure of the panel.

The second and third frames lift off the cockpit and attachment points for the wing spar and together form the structural part of the Swift. Wing up seems to be very fast with few clamped wing members in the internal structure. The use of heavy wing also follows from these structural considerations.

### Hawker Hunter

Hawker will produce the Hunter at four major sites—the Kingston plant currently building Sea Hawk production,

and the new Blackpool plant currently making total components on the production line for the F-104.

Right now the problems of tooling and jigs are keeping the Hawker still busy. The second prototype Hawker was flown not too long before the F-104 launch display. There are no production aircraft completed, and these are not in final assembly.

The Hawker is the latest in a line of Hawker jet aircraft that began at war end with the P-108 modified some what in later years to become the current production Sea Hawk. Successive development of that little aircraft led

to the Hawker P-108, first demonstrated publicly at the Farnborough display in 1951. Later the P-108 was moved to the Hawker and given the super priority go-ahead.

A Rich-Race Area powers the Hawker. There is no afterburner in still, although indications is that there will be.

Package base of the Hawker are in the most beautiful among current press, fighters. Its wing has low aspect ratio (square of span divided by chord) and pointed in wing.

First gun ports, for the 50mm cannon, are the fuselage, belly of the second prototype Hawker.

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Span of the Hawker is 57 ft 8 in., length is 45 ft 3 in.

► **No Production Yet**—The Hawker has a conventional structure of the conventional aircraft, but there are no exposed or rolled skin work, and no extremely heavy machined parts. Jigging and tooling is impossible in American practice except for the degree of mechanization and the material used. Reason for the decision is the number of planes or dual.

Hawker's plan, like so many other British aircraft factories, are spread all over. Conventional machine shops are in one location, a component shop is in a few blocks away. Parts are tracked from shop to a final plant for assembly and flight test. So you can't get the whole picture by walking through a single building.

But the component shop is probably typical. It is, by American standards, rather mechanical. Three Fairbanks 16 ft mills, one rubber press, a couple of stock presses, and one General A 60 A gear roller make up the large-machinery inventory.

The emphasis is on conventional things of low material and finished component. The whole production scheme is set up around the idea of keeping the parts flexible, mobile and moving.

► **Flexibility**—Both—Kempster, the air of the Hawker plant, is on the Thames River. The subject is variable, one conventional pin and fixture would be out line in a week.

So Hawker has set itself a heavy, rigid foundation made of steel sections and plate to carry fixtures as a super structure.

Some of these cuts were being to build on the factory floor during repair, and others of steel sections for wings or fuselage sections were being built.

These cuts give a dividend in mobility of the line. The entire fixture can be lifted out of the line and moved on a track to another site to start production there. It is also possible to set these fixtures up in old sections of a partially filled shop, and produce parts from those while working for the day the shop is empty and a jumper line can be organized.

► **Master Grid**—Master work, starts at all Hawker plants, is the master grid. The shops. Instead of making dual physical beds for each part, complete with boring blocks, Hawker uses a large open metal grid which locates parts, templates and stock, and makes them. The way only a few of these grids are needed for setting and working, and minimum storage space is required for the flat templates.

Plywood and wooden support structures are used in sub-assembly. Every bit of taking that goes into the airplane is formed at the bench on a

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Some low-dielectric-point alloys are used in this filter.

Aluminum—which resembles American Aluminum—and the dielectric, a low-dielectric compound, are built up in form in piece work at Hawker. Here again the quantity of parts being made permits the use of these materials instead of steel, for example.

Hawker is using reinforced materials for stack press dies. The form is built up to rough contour with the dielectric, and then finished with about one inch of clear cement. A layer of clear plastic is sprayed on to fill pores and provide the necessary smooth surface.

► **Seaming Up**—The filter, like the Swift, is covered by military secrecy, and as with the Swift, it is not possible to describe detail parts.

But the Hunter is different from the Swift in basic structural design. It will be built along the same general lines but Hawker has built all of its metal templates, with machined construction. Examination of pictures of the plane's exterior indicates the use of a number of hinged frames plus the usual string on and dual. Pictures also indicate that the fuselage mid-section comes off for access to the jet engine.

If we had to make an overall comparison of the Hunter and the Swift in structure, we'd probably say that the Hunter was mostly emergency and the Swift was mostly buildup. On load factor, stiffness or performance there is little to choose from.

There are lots of "ifs" in the production program for Swift and Hunter that for instance, no one outside of that Supermarine, with its head start and mechanism, will be able to out-produce the Hawker plants in early production. The American engineers and makers of mechanics in assumption which is the foundation stone of the Swift program. Supermarine has been somewhat more daring in its structural approach and production planning. With this move to take a greater risk they also stand to get the greater return that go with heavy Swifts in service before Hunter. That is the way it will probably be.

## Small Firms Unite To Seek Defense Work

A production pooling arrangement for small firm participation in defense contracts has been announced by General Fire & Rubber Co., Akron, its sponsor. A new organization—Council For Production Pooling, Inc.—has been organized to direct activities, and the program has been approved by the Atlantic Coast, Midwest Truck Manufacturers and Small Defense Plants Association.

Under this type of pooling company, General reports it will select defense

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A new spotwelding tool developed at Rohr Aircraft Corp. simplifies the joining of telescoped tubes. With Rohr's new approach, there's no interference from the locking fixture, a frequent problem in the past.

In spotwelding the ends of telescoped tubes, Rohr previously used a holding fixture and portable welder-one electrode against the outer tube, another against the inner tube. As the welding tool was turned for the various spots, the outer electrode often was obstructed by a part of the fixture, preventing the weld from being made at that point.

Rohr got around this difficulty by positioning the tube ends in a heavy copper ring that surrounds the inner tube and serves as a fixture. Two pointed arms of a special portable welder are inserted in the inner tube, one arm carrying an embossing tip, the other a copper welding electrode. The heavy copper ring and the welding electrode are connected to the cable ends supplying the current.

For operation, a wedge between the two arms is automatically actuated to force them apart, so that the insulating tip and the copper electrode are pushed into contact with the inner tube wall. When this happens, current passes through the two tubes between the electrode and the copper holding fixture, to effect the weld. Release of the pressure withdraws the wedge, closing the arms and breaking contact.

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- Unbonded Lockdown-filled tub was given 300,000 cycles at mean temperature. A slight cracking occurred in the trailing edge lower skin.

These tests demonstrated that the bonded plastic had definite structural uses and work was pushed to get these physical properties normally considered in design entries.

For Radome—Further development by Lockheed engineers considered the manner powder used in the foam skin being applied. This came at a time when the project office was faced with the problem of providing a satisfactory solution for the aluminum P-94, rather Genshler. Flat panels were made checked for radio transmission characteristics and found to be better than anticipated.

A point blank was set up in the lab, looking was designed and built, and 11 domes were quickly produced. Procedure was to pour the liquid into the mold cavity, then lower the upper half to the lower die for a predetermined distance. Fiberglass skins and outer skins conformed to the contour of the mold within the accuracy of the tooling.

Static tests were satisfactory, tests established that oxygen blast could be absorbed by the radome structure, flight tests indicated satisfactory radio performance and heat sink error was found to be well within specified limits, reports Genshler.

For Doors—Another application was with a rocket door that tended to buckle from the rocket blast. Designed with a double-skin construction of drop-instrument parts, the hollow spaces had some depth. Four holes (1 in.) were drilled for introduction of foam and the cavity filled with the foam fluid. Genshler says that the result was satisfactory and no tooling changes were required.

Next application was with an antenna mast that was failing from fatigue. Here again, the cavity was quickly filled with Lockdown and the difficulty solved. No redesign was required and produc-

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5. 参考文献: 1. 王德成, 王德成, 王德成. 2000. 中国人口学. 北京: 中国人口出版社.

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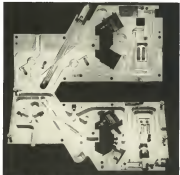
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COMPOSITE: NEWER U-2 uses solid block which are then drilled together then bolted.

## Radar Plumbing Can Be Lightened

Farranti cuts the size and weight of waveguides in half by technique of milling channels in blocks.

By Philip Klass

The size and weight of radar and microwave plumbing can be reduced by one half or more with a new technique recently developed by Brian's Farranti, Ltd. Its application could ease size and weight problems brought on by the growing use of radar on military aircraft, particularly interception.

► **Milled blocks**—instead of using one traditional waveguide to carry high-frequency radio energy, Farranti mills channels, half the width of the major dimensions of the required waveguide, in free metal plates or blocks of suitable conductive material. The two halves are then joined and bolted together to form the waveguide non-axiomatic cavity, in sliding alignment.

With the new technique, intricate wiring plumbing can be folded at sharp angles to form a compact RF (radio frequency) assembly. If such bends were attempted in conventional waveguides,

they would distort waveguide wall thickness, damaging performance.

Since there is no constant flow across the major axis of a waveguide, the direction in which the two halves of the Faranti block join has no adverse structural effect, the company says.

► **Added advantages**—In addition to its size and weight advantages, the Faranti milled block technique also provides:

► **More rugged construction**—RF cavities are protected from inadvertent damage by maintenance personnel because of the enclosed block-type construction.

► **Easier inspection**—The two halves of the milled block can be quickly separated for visual inspection by removing retaining bolts. (Although Farranti doesn't like American industry's aversion to bolted joints, it says it is available to secure extraneous aircraft alignment of the two halves of the block.)

► **Component mounting**—Additional guides can be milled into the block

to permit plug-in type mounting of TR and ATR switches, crystals, probes, other RF (intermediate frequency) amplifiers, etc.

► **U.S. investigations**—American Westinghouse, that at least two U.S. manufacturers are working on similar milled-block techniques under military contract.

A spokesman for one of these companies said that he thought the new milled-block technique held considerable promise for cutting size and weight of airborne radar. (He also spoke of the even greater size and weight saving possible with the printed circuit waveguide technique recently disclosed by Federal Telecommunications Laboratories.)

► **Manufacturing**—Twin Can-Farranti says that its new technique cut manufacturing time to about one-third that required for a conventional waveguide assembly.

The figure sounded reasonable for smaller (higher frequency) waveguides in the spectrum for one U.S. company. He warned that larger size milled-block waveguides might not stack up as favorable because of the added milling time required. One saw out of the problem, he suggested, was to cut the blocks and use the milling operation to "clean them up and obtain final dimensions."

## Overvoltage Cutoff Protects Alternators

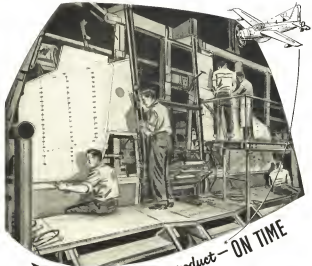
An ac. overvoltage sensing and cutoff system to protect aircraft alternators looked up in parallel from severe current and overvoltage has been developed by General Corp. It can also be used for dc. overvoltage protection.

Said to be one of the first of its type, this equipment, called a three-phase directional power relay, provides a more precise trigger point and is less sensitive to vibration than other dc. equipment, General says.

Essent of the equipment is a set of three integrated, miniature gold-plated gate triode tubes—one for each phase of the three phase current—to trigger the contacts to cut off severe current or overvoltage.

The unit weighs 3 lb. and is 100% hermetically sealed, making it suitable for rugged techniques of potting, epoxy casting, or vacuum casting resin. The equipment is designed not to trigger parasitic from a short pulse of overvoltage.

The set consists of four small boxes. Three of these are individual sensing units, one for each phase of current, in which are contained the trigger tubes and motor relays. Current conditions in the main alternator circuit are telegraphed to these sensing units by three



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## FINANCIAL

### GM Air Giant Stirring Again?

- Through North American Aviation and Bendix, auto firm once blanketed the aviation industry.
- Does consolidation now of AeroProducts and Allison divisions foreshadow a new expansion?

Recent consolidation of General Motors AeroProducts and Allison divisions "has better served the military services and aircraft manufacturers" (Aircraft Week Sept. 22, p. 18) seals the dominant position the colossus of the automobile industry once enjoyed in aviation. And through the consolidation promises to mark a new chapter of GM aviation participation, the auto giant is not likely ever again to approach its former eminence in this field.

Allison and AeroProducts are the last remaining units in GM's once formidable investment in aviation companies.

In 1929 General Motors made its aerial entry into aviation as 1929. The automotive combine rather timidly remarked in its annual report at that time:

"What the future of the airplane may be, no one can positively state at this time. Through this association General Motors will be able to evaluate the development of the industry and determine its future policies with a more definite knowledge of the facts."

General Motors has done well in aviation—has made it pay. At all times, too, GM, by its aviation investments, has had a finger in the pie, a bridge against other industrial developments supplanting its main function. And when it decided to leave the aviation industry, the decision was made fairly and cold under the pressure of competitive factors.

In recent years GM's managerial policy has been to dispose of investments in companies not wholly needed and consequently passed from its main function. At least this was the explanation advanced when its interests in Bendix Aviation Corp. and North American Aviation were put on the block in 1946.

North American Aviation-Bendix General Motors' most profitable aviation investment developed through the initial acquisition of 400,000 shares in May 1936 of the Forday Aircraft Corp. of America (name later changed

to General Aviation Corp.). At the end of 1938, General Motors reduced its Forday investment at \$3,782,142. Through other additions, consolidations, exchanges and simplifications GM came up with the ownership of 1,011,061 shares, or 29.55% of the newly created North American Aviation, Inc., on Dec. 31, 1939.

GM's fading aviation participation through its interest in North American Aviation, Inc., can be seen in the hold-ups of the latter company early in 1956. At the time, North American Aviation owed:

- 51% of the stock of Western Air Express Corp. Western owned all the issued stock of Western Air Express, Inc., and 47.6% of the stock of Transcontinental & Western Air, Inc.
- 37% of the stock of Transcontinental Air Transport, Inc., a holding company whose principal asset was 47.6% of the stock of Transcontinental & Western Air, Inc.
- 70% of the stock of Douglas Aircraft Co., Inc.
- 104% of the stock of Eastern Air Transport, Inc. (later to become Eastern Air Lines, Inc.)
- 100% of the stock of General Aviation Manufacturing Corp., which was engaged in building Army and Navy planes at the B-1 plant at Dandridge, Mo.

The stock interest in Douglas Aircraft Co., Inc., was sold at a profit of \$1,199,940.

Reorganization—Due to the terms of the Air Mail Act of 1914, a number of reorganizations moves became necessary. North American received 573,285 ordinary and 155,351 shares of Transcontinental & Western Air, Inc., when it disposed of its Western Air Express Corp. holdings. An additional 85,290 shares of Transcontinental & Western Air, Inc., stock were turned over to the liquidation of Transcontinental Air Transport, Inc.

The 270,566 shares of Transcontinental & Western Air, Inc., which North American now owned, was devalued to the stockholders of the



### Corsairs Join the French Navy

Glistening new Corsairs wearing the anchor and tri-color insignia of the French Navy are rolling off production lines at Chance Vought Aircraft in Dallas, Texas. They are F4U-7 Corsairs, now being built in quantity for the French Government under the Mutual Defense Assistance Program.

France is getting America's number one piston engine fighter-bomber in the F4U-7. It is similar to the F4U-4 Corsair, but, like the AU-1 Corsair currently in production for the U. S. Marine Corps, carries heavier armor and armament. Other Corsair models have flown thousands of vital missions in Korea.

### Chance Vought Aircraft

ONE OF THE FOUR DIVISIONS OF UNITED AIRCRAFT CORPORATION

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DATE, TIME, FROM, TO, DEST, BY, AIR, THROUGH, STOP, THE, FLIGHT

**In Portland:**

TO, DATE, FROM, THROUGH, DEST, AT, THE, TIME

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**LOOK, CAN, WE, IMPROVE?**

**OUT OF MY WAY, AND, I'M, HERE, TO, HELP, YOU, WITH, THE, AIR, LINE**

**NO, MORE, FLYING, TIGERS, JUST, ONE, MORE, FLYING, TIGER, TO, A, WONDERFUL, SERVICE**

NOW SERVING THE PACIFIC NORTHWEST WITH Regular Scheduled Service  
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- Fits pressure up to 100 p.s.i.
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- Standard on 14 types of jet aircraft

• Instantly fitted and ready to use

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latter company Feb. 15, 1945 General Motors Corp. owned \$1,204 shares, or 13.95%, and was a virtual control of Transcontinental & Western Air, Inc.

In the same year, General Motors sold five stock to Lehman Brothers and Affiliates Corp. for an indicated price of about \$1,100,000.

► **Real Sale.**—Turning to manufacturing in preference to the air transport sector, General Motors got completely out of the transport field in 1935 when North American sold its Eastern Air Lines division for \$35.5 million to a syndicate headed by Capt. E. V. Rickenbacker. As a result, the development and manufacturing of military aircraft were because the sole activity of the company.

At the end of 1938, with the various dispositions completed by North American, General Motors owned 1,600,951 shares, or 29.1% of the total, which it carried on its books at \$4,510,611. From 1938 to end 1948 when its North American stock was sold, GM received more than \$10 million in dividends from this source. In its sale of the North American stock, General Motors is intended to have realized a capital gain of another \$10 million to represent its previous dividend income from this source.

General Motors also did very well in its one line involvement as Boeing Aviation Corp. In April 1928, 500,000 shares, or 25.5%, of Boeing, was acquired for \$15 million in cash and other assets. Dividend income from this source together with the capital gain realized on the sale of the Boeing stock, with the final transaction sale in 1948, gave General Motors a substantial profit in this transaction as well.

► **Alliance Background.**—All that remains of General Motors' own involvement in aviation participation is the recently consolidated Aerospace Alliance division.

Like the Fisher and Bendis ventures, GM's Alliance interest dates back to 1929. It was in that year that the corporation purchased Allison Engineering Co. whose facilities were, and still are, located alongside the Indianapolis Speedway. The unit became a closely owned subsidiary engaged in selling services. Total capitalization is carried at \$10,000.

The actual development and tests data of the Alliance company have not been conducted by Allison Engineering Co. They have been under the wing of the Allison division of General Motors Corp., on which no detailed information is available. The magnitude of Allison's physical facilities and production capacity, however, are known to be very great.

—Sieg Altschul

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### high interrupting capacity cutouts serve leading airlines the world over

Thousands of operating cycles at rated capacity under conditions of wide ambient temperatures, humidity, dust, altitude, vibration, acceleration, shock. Add to this the possibility of 28-volt generators producing up to 175 volts if a failure applies full field at high rpm as on skid. These rugged conditions demand the utmost in interrupting capacity.

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MINNEAPOLIS, MINN.



# Hong Kong Aviation Trio Serves Orient

- HAEC's shop handles wide variety of work.
- Cathay Pacific, HKA routes cover the area.

By George L. Christian

**Hong Kong**—This city's aviation activities are dominated by a tripartite consortium of an aviation agency and two airlines—Hong Kong Aircraft Engineering Co., Ltd. (HKAEC), Cathay Pacific Airways and Hong Kong Airways. Relations between the three are close—Cathay Pacific helped set up HKAEC and now owns part of it; Hong Kong Airways' planes and crews are all dispatched from CFA.

• **Overhaul Equipment**—HKAEC operates the most nearly complete overhaul facilities in this part of the world. It can handle engines such as the RB740, RB750, RB300, RB300 and a number of British engines, American and British propellers, automobile pilots and airplane pilots.

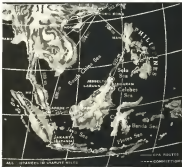
D. B. Landing, deputy general manager of HKAEC, says that the nearest comparable shop is 5,000 mi away—Bendavid Aircraft, Ltd., at Bangalore, India.

• **Lined Engines**—Cathay Pacific Airways, part owner of HKAEC, owns one DC-4 and two DC-7s, operates several schedules a week to such distant ports as Singapore, Saigon, Manila, Sandakan (Borneo) and Hongkong (French India China), but does not run over the engines on its DC-4. The four engines on the console, plus one spare are being leased from Australian National Airways while the aircraft's original engines are reworked.

In spite of such unpredictable circumstances, sudden changes of government regulations, leasing aircraft to a semi-competitor, operating under the rules of Communist China, there is activity when catastrophe only set fire and weather hinders them. Cathay Pacific has agreed to bank over on the heels.

High operating expenses and difficulties in obtaining spare parts from the U.S. do give the airline trouble, though.

Hong Kong's airport, Kai Tak, has a long runway, operations dodging final approach against with its nearest alternate at Taipei, Formosa, two hours away in the DC-7 line.



CATHAY PACIFIC AIRWAYS routes over the South China Sea from Hong Kong.



HAEC MAINTENANCE shop handles repairs at jobs including options and C-4's.

Hong Kong Airways owns no aircraft and has no crew. Yet it operates schedules between Hong Kong and Formosa with its chartered CFA aircraft and crew.

• **Consolidated Character**—HKAEC's business reflects Hong Kong's cosmopolitan character. Among its customers is Civil Air Transport of Formosa, for whom Hong Kong Aircraft has over-

hauled some 100 RB300 engines, and another RB300 customer the French Air Force, some of whose T4U engines pass through the shop.

HKAEC's main shop checks British Overseas Airways Corp.'s aircraft radar, and works on Pan American World Airways' radar gear.

Complete maintenance facilities are furnished for Cathay Pacific Airways.

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► **Aviation Maintenance**—Each of the 14 visiting Kva Tek units on HAEC for some sort of work, the overhaul company says. The facility is prepared to carry out work in accordance with the regulations under which the company's aircraft operate.

Operators can supply their own spaces if desired. If they supply their own tools, these are reserved for their own exclusive use.

HARVEY points out that it is geared to work 24 hours a day and that its staff comes from all parts of the world, both a wide range of business. The firm's essential equipment includes Spitz, DC 3s, DC 4s, C 46s, PRYs and Newcomers.

HAEC was formed from two joint ventures, Pacific Air Maintenance & Supply Co. and Jardine Aircraft Maintenance Co. The former was set up by Cathay Pacific Airways, the latter by Jardine, Matheson & Co. with BAC, to overhaul Hong Kong Airways' planes, before HKA sold its first

The engineering staff includes old hands from the Coast Range, the U.S. and Australia.

► **Radio & Radar**—Long Kong Aircraft's radio shop is equipped with a complete range of testing and calibration equipment.

Its power supply is interesting. The output of generator being run in its generator test stands in the electrical shop is used to charge large, very heavy-duty 120 amp. hr. wet cells, which in turn supply power to experiments of the radio shop. This characterizes waste of generator output and does away with need for internal power source.

Other uses of granular bed should  
be noted.

- \*Quantities negatively magnetized, class strong purchase of hard-to-get rockflow tubes

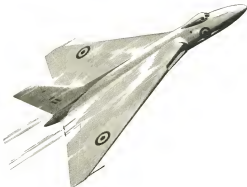
- Suppliers connect to the cluster test stand

- Poems test stand for Carter despite cancellations in the same show

► **Waterproof Harman—Hong Kong Air** Capacitors has developed a method of waterproofing engine harness which is so good, that say, that almost every operator in the rain (and the RAF) is immune to it.

Method is simple. Intakes against pressure is measured with an Araldite made plastic tubing called Nylex, one such Nylex sleeve are fitted over each end of the lead to ensure water tightness.

The method gives excellent results as is illustrated, e.g., in the following determination of  $\alpha$ :



**SAFETY  
plus  
ECONOMY**

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# SMITH-MORRIS EXHAUST PIPES



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The old saying "A chain is no stronger than its weakest link" might easily be the axiom of aircraft design. No unit of the compound reciprocating engine is more significant for its efficient service than the lively exhaust pipe.

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BOAC ARGONAUT (above) being checked at San Tin Airport, Hong Kong, and Pratt & Whitney Avon 52000 piston engine (left) being assembled at Hong Kong Aircraft Engineering. Car's engine shop. Supply work being done by HACC.

security—it can save 35 miles a month in Hong Kong.

► **Technical Shop**—Unlearned patience of the Chinese makes them the best maintenance men in the world, on HACC airplanes. The painstaking attention to detail the men give even the most minute part of their job results in finished products of the highest quality. HACC says.

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► **Cathay Pacific Airways—CPA's** top men often focus on advertisement for, Rex Farrell, an American, and S. H. de Kintion, an Australian. In February 1946, they bought two Dakota (C-47) with a group of ex-pilots. They had a tremendous—mostly from Australia

Shanghai, where it was sold for their own account.

The latest short story showed black ink and passenger flights were conducted between freight use. This service also proved popular. So, in September 1946, Cathay Pacific Airways was formed and registered in Hong Kong to care for the aircraft. Manager was not under de Kintion.

M. G. G. Kintion, CPA's managing director pointed out to Aviation Week: "In the early days after the war, there was a great shortage of all kinds of equipment in the Far East, and nobody who could help supply this deficiency was welcomed by the various governments concerned."

Most government control of aircraft dispatch began in 1947-48. CPA's only was found out that their efforts to obtain operating rights from the Hong Kong government were hampered by the fact that CPA capital was predominantly American.

The U.S. shareholders were eventually shifted to Butterfield & Swire, a partnership agent and operator, and Australian National Airways. A new firm was formed in Hong Kong in October 1948, but it retained the same Cathay Pacific Airways. De Kintion retained the ownership and the old pattern kept a staff building in the company.

Two and a half years later, de Kintion and the old pattern turned over their control and share in Butterfield & Swire.

► **Equipment**—The airline's equipment



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picture grew from the two original C-47s to seven of the aircraft plus two C-47s. Operations spread for a while to the north of Burma, only to come to a halt when inland airbases in that country were abandoned. CPA dis-posed of the surplus aircraft, but bought a DC-4 in late 1949, bringing it to its present fleet of two DC-3s and one DC-4.

The DC-4s R7000 engines proved unsatisfactory. While testing their conversion, CPA found for 14s from ANA. These engines gave an excellent amount of thrust-on, carrying only one season delay (18 hr) in two months during which they operated 2,600 flying hours under the most rugged condi-tions, according to Kowles. Cofair Pacific experts soon re-installed its en-gines in the DC-4.

► **Missions Over**—Cofair Pacific had one of its planes considered by parties probably the only airline ever to suffer such an indignity.

Facts as far as they are known, are these: A group of parties headed by Cofair Pacific based from Macao to Hong Kong. The route they wanted to hold but various other parties. After the Cofair Pacific became airborne, the parties refused to leave the area at gas point to change course to the proper destination. The crew apparently stopped the plane's determination. The plane wreckage was finally located—half of better when the service one party.

► **Simplified Procedures**—A flight from Hong Kong to Taipei, Formosa, in one of Cofair's DC-4s in the case under-stand to Hong Kong Airways showed this reporter how the company had simplified some of its procedures.

A trip, too, shortly ahead of the main relief landing, does occur in all previous flights. The relief would have occurred two or three times but the



COLD TEST

Service for the service man is provided by the cooler (140) which can be added up to aircraft to bring down temperature in frosty or working vehicle with its inter-locks (140) to 100° at Lake Erie in June, on Aug. 10, was developed by Polar-Mat. One of that can be speed maintenance on jet aircraft.



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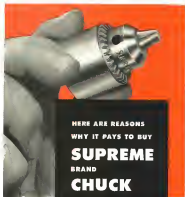
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Fuels, Gyroscopic Equipment and  
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circumstance of the times as even off baggage idea a meaning that it is a very hard one to carry on such modern aircraft as the Conquest Line and the Delta 400. But the general aviation community for July 10, 1960, says: "So single row is provided to make the fast row of seats and forward bulkhead for cargo."

The hardware lines of these (jet) cockpit and radio operators put the plane off almost evenly on time and I noticed the 752 was off even after flight with difficulty. Although even flight to and from English poses some to that Coast. I believe, an accident has occurred to date.

## OFF THE LINE

United Air Lines blocks out several pairs of seats upon completion of a flight. A sign hanging on a rod cutting out the seats reads: "These seats reserved for passengers traveling together." UAL, according to its rules is quite effective and saves them some a headache when complex air, among the best to board a plane and cannot find seats together—especially if the two are business men.

Hand-to-hand is a passenger plane can observe in this as light minutes before the departure of a 100-pass Airbus DC-8 and a single passenger seat placed at the airport. All 20 of them arrived during the five minutes before scheduled departure time. These last-minute seats do not cause confusion and delay. UAL spokesmen say: Both this and the previous are used to it.



DECCA LOG

Vacuum's seat is prepared by British Data Navigation's patterned passenger design flight tests of the helicopter. In fact, one of a series scheduled before the Airbus Vacuum-700 goes into service with British Airways. Another seat, per Decca, development of U.S. ownership and defense aviation equipment, are going into tests of British trial craft, although coverage was pulled in 1960's standard.

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the compression on the springs. This  
flares the contacts on the springs to  
close together and close the circuit.

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AVIATION WEEK, October 27, 1952



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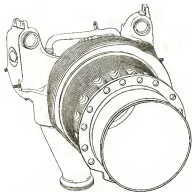
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Permatex Rubber Products, which claims it is the largest producer exclusively of O rings, put its engineers to work to meet the situation. They developed Compound 14279, which meets all requirements of MIL-R-7962 specifications covering rubber products suitable for use with the synthetic base oils. Military specs covering some of these oils are MIL-E-7509, MIL-O-6085, MIL-O-6387 and MIL-E-3273.

The new compound also has been approved by various jet engine and aircraft manufacturers in meeting their own particular specifications, the firm reports.

Permatex Rubber Products Corp., Boston, Ohio

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## AIR TRANSPORT CAB to Curb Powers of Its Chairman

- Members say that Nyrop made nearly all decisions.
- Now they plan to revert to the pre-1951 setup.

By Lee Hoar

There'll be some important changes made in Civil Aeronautics Board procedures next week, aimed to make the Board more of a political body and less of a one-man administration. The powers of the Chairman will be cut down to zero.

CAB Vice Chairman Oswald Ryan last week was designated temporary chairman for the two months to the end of this post by President Truman. Since Ryan is a Republican appointee, the designation appears a routine in terms of politics. Ryan has been "acting chairman" in similar situations before.

Next Monday morning, Nov. 5, the four CAB members left by the resignation of Chairman Donald Nyrop will meet in executive session as usual in the Board rooms. But their action will be limited, because they again will be in control of CAB operations and staff officers after two years in which the Office of the Chairman has generally handled these matters single-handedly. The four members have accepted their back-seat position in Board affairs the last two years. One member told *Airways Week* he had to spend half his time guessing and slouching to find out what half-cocked decision the Chairman-controlled staff was going to remove him with next.

Now an major change the members will prepare next Monday.

- The CAB staff and its executive director staff report to the whole Board.
- Staff hiring and firing, which has been approved of the Board for almost a decade, then actually, division heads and perhaps even section heads.
- Budget allocation shall be with approval of the whole Board, thus, plans to staff project assignments as well as normal program.
- These powers have been the Chairman's, as a matter, since previous Chairman Delta Rostell resigned CAB membership and passed it on to his hand-picked successor, Donald Nyrop, who resigns this week-effective Nov. 1.



THIS SETUP of Civil Aeronautics Board will change soon as the remaining four members vote and this plan to consolidate the post of Chairman into the Board. The executive director would report direct to the Board.

The Board members, other than the Chairman, have feared that the Chairman's control of the staff has resulted in his running the Board more like an administrative than a quasi-political board for consumers. The power to hire and fire the staff and plan its work gave him the potential power to in essence ultimate directing of the whole Board, the members believe. So, even though one of the four remaining members is likely to be designated Chairman by the next President, it is believed that they already have agreed to curb the recently acquired powers of the Chairman's office.

Once that is done they plan to slash the rest of the CAB machinery created by Rostell and Nyrop in the interest of administrative efficiency. Many prominent airline attorneys in Washington have told *Airways Week* that the elimination of "public counsel" was a bad idea. Under the 1951 program action recommended by Rostell by the management efficiency study of Ross Allen and Harbison, public counsel was abolished. The attorneys were split up and assigned to the individual business public counsel in economic cases come under the direction of the Bureau of Air Operations director and acquired the new title of "business counsel." Washington attorneys generally be-

lieve that was carrying functional or promises too far for a quasi-political board whose chief cause for existence is to assure the protection of law and in dependence—not administrative efficiency.

• Reorganization—The recommendation of the House Committee on Commerce' Reorganization Act of 1949, the President in 1950 transferred CAB's boardkeeping responsibility from the whole Board to its Chairman. But this was for bookkeeping efficiency. Can two committees of Board control of policy and staff philosophy and action were outlined as.

Here is that reorganization plan of the President:

**Civil Aeronautics Board.**  
Section 1. Transfer of functions of the Chairman—(A) Subject to provisions of subsection (B) of this section there are hereby transferred from the CAB to the Chairman, the executive and administrative functions of the Board, including functions of the Board with respect to (1) The appointment and supervision of personnel employed under the Board, (2) The distribution of business among such personnel and among administrative units of the Board, and (3) The use and expenditure of funds.

(B) (1) is carrying out any of his



Charles Reed, vice president, Bess International Airways; Paul Rothstein, vice president, Eastern Air Lines; Edie Cooke, assistant to the president, Delta Air Lines; John Leslie, vice president, Pan American World Airways; Robert Lane, president, All American Airways; W. J. Wettersen, assistant vice president, American Airlines; John Wolff, assistant to the chairman, Trans World Airlines.

**Airline Victory**—The declaration against integration of transportation was a decisive airline victory over the railroads. Originally the majority opinion was on TAA sides, airlines, railroads,

package-oriented integration. But on reconsideration, all representation, except railroads, opposed it. The vote was expected to drop their fight now and go along with TAA policy on the road.

Final action on the Policy Board's recommendation will be taken by TAA's board of directors in December and be ready for presentation to Congress in January.

One major fight is still underway in TAA whether a single regulatory agency should be established for all forms of transportation.

Railroads, consumers, and investors are fighting for it. But they are being

challenged by airlines, freight forwarders, shipowners, and waterways. Tipton cautioned: "Among those subject to regulation, it's hard to see against a single agency."

The "self-sufficiency" policy for transportation has the backing of Commerce Department. Civilian Aeronautics Administration Jack Cornett has laid down in the objectives for the long range transportation study now under way.

**Limitations of government-owned assets.**

**Proposition of changes upon the uses and beneficiaries of transportation facilities in whole or in part, but such changes are far and acceptable.**

The Commerce Department plans to introduce legislation to Congress in January. By then, Commerce plans policies on one chapter. Dr. Beattie Robertson, director of Commerce's Transport Economics Division, is in charge of the project.

Meanwhile, Civil Aeronautics Administration has decided its study to work out a system of new changes for airports facilities. Commerce has decided that it must work out a uniform transportation policy before stepping on airports facilities for taxing airports.

TAA's Policy Board recommended amendments to the 1958 CAA Act to spell out these policies:

**"National policy should clearly be stated at the ultimate prevention of new changes sufficient to cover the new facilities of the costs of building and maintaining the government facilities they need to use."**

**"The major problem here involved is that of taxing."**

**"The government should permit and encourage the operation of the air transport system on a basis which will cause readily bring about a condition of self-sufficiency without subsidy, and the provisions of the CAA Act, including that referring to 'public convenience and necessity' should be administered with that requirement and objective in mind."**

**"Attention should be focused on the placing of the burden on a self-sustaining basis without subsidy payments."**

**"Civil Aeronautics Board (as a consumer organization) should report to Congress every two years on the extent to which the industry, in whole or in part, has reached a state of self-sufficiency which makes it possible for it to stand on its own feet and the measures it has taken to accelerate such a state of self-sufficiency."**

**"As to agency cost charges, the first step should be the creation of new charges, which when taken with the industry's present contributions, will cover the fully allocated share of the cost of**

maintaining and operating airway facilities provided by the government and reasonably needed and used by the industry for their commercial operations."

**"All users of airports should pay their share of the cost of facilities."**

**"Allocation of cost should, of course, reflect the government's active use of its own facilities plus its requirement for facilities for its periods of non-active airway use."**

The fact that the government communities build airports facilities of a capacity not met by requirements over a reasonable period should not be considered a reason why users of such airports should pay a share of the cost of the excess facilities.

## M-Day Plans

**Procedure of airline in emergency undecided.**

**Disagree on allocation of planes left for civil use.**

Airline modification planning is still in the debate stage.

Airlines are arguing with Air Material Command on terms for plane modification and with Civil Aeronautics Board on how they should divide up the airframe left at home after overseas warlike location.

Soon two years ago, shortly after outbreak of the Korean war on June 26, 1950, Air Force, the airlines, National Security Resources Board and CAA had plans to modify four-engine bombers for 48-hour missions for various military contract operations. They can still plan away, and so far no modification has started.

Latest deadline for the airlines to sign modification contracts with AMC was last July, but terms still are in dispute—especially the question of which firms shall be "fixed price" or "cost-plus."

Air Force appropriations expect the end of this fiscal year and observers expect that before next spring the matter is over, not until end of the two-year-old plan will be changed.

**Logistics Working Group**—Meanwhile, the airlines met with DATA all moderator Ray Ireland Oct. 9 to discuss new plan—setting up a "logistics working group" to carry on some modification planning. It became an official plan this month.

First job of the new planning group is to "compile a complete list of facilities, and suggest to be processed and developed immediately by the Air Force for all lines" through which the reserve fleet will operate. Subsequently, the group is to work out all other operations

plans, a Commerce Dept. press release stated last week.

The group includes a "log committee," an Atlantic and a Pacific committee, and an technical advisory groups, Ireland stated. The top committee is a policy group of airlines, AF, MATS, AMC and DATA represents two that would meet occasionally. The Atlantic and Pacific committees will do the detailed planning and the technical groups would handle communications, flight operations, engineering and maintenance, stores and purchasing, ground traffic and transport. Working group

**Evolution of the Red-Data and CAA** have given the airlines will meet monthly

to fight it out between themselves on how they should divide up the planes left behind after mobilization. Two months ago, CAA Chairman suggested that remaining planes be allocated on the basis of the average two-week flows last year.

The individual airlines have naturally not every complaint. United cites a scheduling table last year that showed its two-mile slugging Northwest cites its Martin 24-2 peacetime smaller airlines with lower load factors want the distribution formula based on available two miles instead of actual revenue two miles flown, by airlines and the one should want a decision based on revenue two miles flown.



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## SHORTLINES

► **All-American Airways** may be on the way to a national major startup, since Washington observers say

► **All Transport Area Airlines** (ATA) speech elsewhere has its continuous traffic origins and destination service study to go now if ATA directors approve at least at complete non-annual reports a year or two later, then would launch a continuous 45% sample data month to month. . . . ATA President R. S. Lord predicts "the advent of jet service in U. S. domestic operation by late 1957 or early 1958."

► **American Airlines** says "no-show" passengers have declined 50% since the industry started its continuous economic study for cost of fares passengers. The major cause said available in time for other passengers—helps both between and the passengers, American points out, adding that more than 40% of passengers begin their trips at cities other than where they board the plane. Company has DPA collection for rapid write-off of its 25 DC-7s valued at \$47,417,500.

► **British Commonwealth Pacific Airways** (BCPA) and eventual merger with Qantas Empire Airways is still in the works between Britain, Australia and New Zealand, but one problem is that aircraft engine test service to Canada and Britain would involve withdrawal of either Britain or N. Z. from BCPA or experience in ownership of Qantas.

► **California Eastern Airways** and Overseas National Airways under contract approach DC-4 training flight school at Oakland Nov 17 a year ago, adding the CNA case of ill-repute, it blamed by CAB on inefficient look-out by the CNA safety pilot and observer and failure of CNA safety pilot to over a qualified observer aboard.

► **Chicago & Southern Air Lines** announced that CAA's requested procedural steps in the Delta merger case "should result in the final decision being announced during November."

► **Civil Aeronautics Administration** started study of employed passengers last year reveals that New York City generated 12% of scheduled domestic traffic and Chicago 54%. Some 22 cities give 65% of the total. May not sit Congress for jet prototype test funds next year, having failed the last two years. CAA does plan to

try again for funds to build a new jet Washington airport at Baldo, Va., scuttled last session by budget problems and opposition from Baltimore, which hopes to make Friendship Airport Washington's long-distance air travel terminal.

► **Civil Aeronautics Board** Executive Paul N. Phillips notes record of Frontier Airlines' schedule with route changes estimated to cost public well about \$360,000.

► **Consensus Department**, which had planned to increase an "air charge" program next month, has now decided of pending integration with an overall transportation policy at a later date.

► **Flying Tiger Line** predicts that freight traffic will require the air passenger business within the next decade. President B. W. Prescott told stockholders the new DC-6A on order will increase Tiger capacity of 35 C-54s and C-54s by 45%, reduce operating expenses by 20 to 25% and develop a volume about needed greater than today's.

► **KLM Royal Dutch Airlines** reports starting its Amsterdam Montreal-Mexico BGO service Oct. 27 and that month also will extend its South American line to Santiago, and schedule three all-cargo flights a week to New York.

► **National Airlines** has received the first of its order of eight new 60-passenger Douglas DC-6Bs. They will add annual capacity of 60,000 passengers between New York, Washington, and Florida this winter, NAL says. The DC-6B is part of a \$30-million expansion program for the next two years, which also includes eight Convair 440s and four DC-7s. Total program will raise this double National's capacity by early 1954.

► **Northwest Airlines** lost factor the first week of October was 65% compared with total October average a year ago of 75%. This year's September average of 70% compares with 74% a year ago. Actual increase of \$569,475 were an decline monthly record, with net profit after taxes of \$499,542.

► **Pan American World Airways** will build a \$100,000 mechanized engine-overhaul shop at San Francisco Airport to service the entire Pacific Alaska Division. It will be working at 50% capacity within 15 months and will carry inventory worth another half million dollars. Company has contracted with Pacific Aircraft for Shredmaster engine overhaul at Burbank, Calif.

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## SO THEY TELL US

### International

Aviation Week's worldwide wrap-up details at the Coast 1 Oct. I thought some interesting problems in Europe. Captain Christopher Clarkin (first page) the story and quoted it for almost a column, but the report "was not wholly accurate." (We have in no other the source material for the issue due as published, or the handwriting of a declassified official.)

A responsible air officer at Portsmouth told us "we have nothing in Europe yet to match the MIG." A Conquest F-16 was due in at a French air base.

### Washington

Investigation of the Senate Small Business Committee, making an anti-trust survey of subcontracting policies of prime defense contractors, will start next month or before the end of the year.

A private detective has been investigating a C&B member, trying to unearth "evidence" of espionage, but in an interview with an Aviation Week reporter, from whom he sought information, he declared knowledge of identity of his employee. This is an indication of the kind of private C&B members undergo, by using their services.

C&B Chairman Nyrup, just before his resignation, said in a speech that C&B is still the most important independent regulatory agency in the government with present payroll now \$66 and current appropriation \$55 million.

### Military Services

Latest military security laws involve a picture of the hyper-Soviet missile, published by Look magazine. Now says it's still estimated, advised to advise it to Aviation Week after Look appeared, and it Defense Dept. are "correcting it." Look says it has a good source in 1946, called "declassified."

There is still concern in some Joint Chiefs of Staff circles that we are building huge stocks of arms and munitions. What we will need? These committee officers worry constantly about possible future congressional investigations and public questions if we don't come up to us, we "spend to meet money for obsolete and unused planes." It was also said that those who had the stockpile and they will probably use the next President to cut back on it after election. Just how possible these plans will be a probability.

The supposedly B-102, delayed some months ago by late delivery of Calsia Propeller division's real engine, is in for another delay. Edwards AFB has sent the pre-shipment back to Calsia for reworking.

### Transport

Although the Port of New York Authority announced that Newark Airport will reopen fully with completion of a new runway, the public opinion in transit in the Newark Elizabeth area is still explosive and some groups will intensify their fight against any expansion traffic, over the nearby fields.

One individual is conducting his own study to determine whether declassification is made, accidentally or otherwise, from the transcripts of interviews in C&B active case investigations. He claims that some records in an Elmcomb hearing weren't in the final record, and he expects to attend future hearings.

### Safety

Alvin Macaulay, Aviation Safety Institute, reports Special Forces work at the Office of Naval Research is studying a new optical indicator which will warn a pilot if the wheels of his plane are still in operation, prior to landing.

A lightweight radar beacon for use by aviation personnel divided at sea is designed to attract enemy planes which can be as high as 20 miles at 5,000 ft. altitude, or up to 30 mi. at 30,000 ft. Guidance is designed for within 300 mi. radius of the beacon. It weighs only 21 lb., operates on a battery with life up to 150 hr., and is made by Semiconductors Associates.

Project for purging fuel tanks by using completely burn-out exhaust gas from the combustion chamber of a jet engine is underway at Wright Air Development Center.

## WHAT'S NEW

### New Books

**Theory and Techniques of Scoring** by John Kuhlau. Probably illustrated with line drawings. 180 pages including index. Published by Perseus Publishing Corp., 2 W. 45th St., N. Y. 16.

A 320 page book volume by an experienced British and European scoring pilot designed to provide detailed answers to weather and flying problems. Although the author states that the volume is for other pilots, it probably would be useful for the scoring agent, though the considerable number formulae might look formidable to the layman.

Included as chapters on meteorology, instruments, the mechanics of scoring, branches, breaking, ending and scoring techniques, acrobatics and non-points—438.

### New Addresses

The Lane Engineering Corp. has been formed in Germany to work with German and other European manufacturers to assist them in building components and equipment to U.S. standards for USAF and NATO forces presently under the off shore present program.

The firm also will act as an agent for U.S. firms interested in setting up licenses abroad. President is Frank R. Lane, president and Walter O'Brien, manager. Headquarters are at 84 East Street, Philadelphia/Mex.

### Telling the Market

Bullfinch 263 describes 10,000 lb. and 20,000 lb. hydraulic elevating sheet loading tables and includes other related items. Write the Ramon Corp., 10295 Madison St., Grand, N. Y.

West Associates, a German Research-Airp. Cables in Industry does custom typical components, regularly produced with applications, timeliness and types of service available. Detailed charts. Write International Field Co., Inc. Type E2, N. Y. C.

### Scholarship

An annual \$1,200 scholarship has been established by Zonta International to encourage graduate study in aerospace or aeronautical engineering. The awards are in honor of the late Anna Marchant and will be given to women who hold a bachelor's degree. For details write Miss J. Winifred Hughes, Aerospace Science University, 940 So. Central Ave., Suite 80 N. Y.

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## The Reversible Prop Controversy

Civil Aeronautics Administration has forwarded a detailed rebuttal to an article recently criticizing CAA, CAB and industry for neglecting commercial airline safety, especially in regard to improving performance of reversible propellers.

Meanwhile, we have learned that far more propeller reversal malfunction reports have reached CAA from the airlines since the article appeared.

The article appeared in *True magazine* and was titled "The scariest possible fact can kill you." The "scariest" was soft, barbed wire.

Aviation Week's growth below the level of CAA's covering letter to the magazine. It was written Oct. 14 by Ben Stern, director of CAA's Office of Aviation Information, to Ken W. Fardy, editor of *True*.

CAA technicians have just completed an analysis of the reportedly incompatible elements at fault in "bars" by Donald Keyhoe in the October issue of *True magazine*.

Our reports have found, after a thorough examination, that none of the alleged incidents never occurred, and that many others are incorrectly reported and have no relationship to reversing propeller operation.

The basic facts about reversible propellers are these:

(1) Four fatal accidents, in which 91 persons were killed, might have been prevented in the last five years had reversible props been reliable. In contrast, one fatal accident in passenger service has been caused by inadvertent prop reversal in flight.

(2) Reversible propellers are so important to safety that the Air Line Pilot's Assn. has recommended strongly that they be required on all airplanes which do not now have them installed.

(3) Their rate of failure has been much lower than that for almost any other component of reversible type and no analysis suggests it to be greater, 0.0007 per 1,000 engine flight hours as scheduled service.

(4) The so-called "manned lock," which the article implies was introduced by CAA under the pressure of accident at Feb. 11, 1952 was just even suggested in CAA until Mar. 25, 1952. The basic principle was accepted unanimously, and it is expected that the manufacturers will have a window of time to prepare ready for airline service turning on November. We are awaiting for your statement the detailed analysis of Mr. Keyhoe's article. After looking this over, I wonder if you wouldn't agree that it would be advisable, if a contributor submits a serious article in the future, to offer on the possibility of communicating on it to advance of publication. In this way we might help you avoid doing something which I feel sure is not your intention—damaging the reputation for accuracy, and damaging the reputations of honest, conscientious public servants by unsubstantiated charges of neglect of duty.

Mr. Fardy wrote Aviation Week as follows:

"Thank you for your opportunity to reply privately to the CAA's comments on your article. . . . The article is derived from much research and far from being 'dramatically irresponsible,' represents a considered and conscientious appraisal of the safety problem."

The CAA analysis of propeller accidents records only as killing a few lives in one reporting as interpretation of the 29 cases we mentioned. (These are at least 18 since we didn't mention, and two more propeller reversal have occurred in airline service since *True's* article appeared.)

The CAA analysis of other statements in the article contains of descriptions of accidents, most of which are in two depths in its accuracy and applicability. But analysis are almost all the same: propeller accidents we noted, side lock of cases and report for the propeller's potential—the article is at least two to 6,000 over-represented as being a wide variety of safety lapses.

Nothing in the analysis of Mr. Stern's covering letter negates the article's basic contention that important safety concerns have been inadequately discussed and completely implemented.

It is significant, we think, that from among all the parties named—the CAA, CAB, eight airlines, five airplane manufacturers, two propeller manufacturers—no demand for a situation has been made to *True*, and no complaint has been directed to us except the CAA's defense attorneys and a verbal protest from one airline representative. On the other hand, expression of agreement has come from two organizations, the Air Line Pilot and the Flight Engineers, whose members work aboard for airlines.

We believe the article has had successful results as at least two customers—on reporting work on propeller locks and on improving CAB checking procedure. But there are already many more cases, and much pressure to be done. In the meantime, we feel *True's* article has had a wholesome effect in contributing to an increased and lasting concern for better safety.

Aviation Week's Safety Editor, Alex McFadden, finds that competent industry technical observers are in agreement with at least one third of CAA's conclusions. But the safety achievements made possible by reverse pitch locking of its planes are so important that they outweigh the hazard of inadvertent reversal.

But they go farther, saving this makes it even more seem that that necessary steps be taken to end misperceptions and eliminate this hazard.

The CAA letter's restriction, above to discussion of planes "in passenger service" eliminated a Northwest Airlines Martin 2-0-1 crash in 1950 in Minnesota, in which four of CAA's own crew and two NWA pilots were killed in a check flight.

Keyhoe had listed a series of 29 accidents or near-accidents involving propeller mechanisms, to which furthering and reversal of propellers were treated indiscriminately.

One especially bad incident from CAA concerned the article's discussion of a "manned lock" for a propeller. The agency blames pilots had made repeated complaints about reversing propellers, "apparently a case of confusion with the automatic automatic feathering system."

CAA's rebuttal says, "It must be recognized that at long as reversing propellers are used there is always some small possibility that serious may occur in flight. Every effort has been and is still being made to reduce this likelihood to the greatest possible extent. The use of an automatic pitch lock has undoubtedly prevented many more accidents than it has caused. This, and not fanciful economic considerations, has been the sole basis for allowing reversing to continue in service airline use."

Aviation Week's Transport Editor, Lee Moore, has been paid the following history, from CAA's technical propeller manufacturers reports filed since the *True* article appeared:

Monday, N. M., No. 1 pump, Avianco, DO-6-thruster was pulled back through the thrust stop, but the pump did not reverse because it was not pulled back far enough to reverse. (Cause of throttle being free to come back through stop lock throttle set.)

Right day later, same plane, on a Delta approach-all four thrusters were pulled back through the thrust stop, but again not enough to cause reversal. (Cause, Small horizontal bar was worn.)

Rockwell, N. F., Avianco, Cessna looking-pilot already had throttles back in reverse position as he touched down, but the plane bounced in a hard landing and he had what might be termed a flight pump stroke during the bounce, so his first landing had reversed the selected. (Cause, Pilot error.)

Northeast Airlines, Monoplane—pump was reversed after a normal landing. After the landing, the pilot opened throttle to climb. The No. 2 propeller remained in reverse. (Cause, Pilot did not have a loose nut which jammed before the reverse pitch stop assembly.)

—Robert H. Wood

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